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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/854,779	05/14/2001	Hans Kragl	Prinz 109	8165

7590

02/13/2003

COOK, ALEX, MC FARRON, MANZO,  
CUMMINGS & MEHLER, LTD.  
200 West Adams Street - Suite 2850  
Chicago, IL 60603-5206

EXAMINER

NORRIS, JEREMY C

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 02/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/854,779

Applicant(s)

KRAGL ET AL.

Examiner

Jeremy C. Norris

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 7-14, 16-19 and 22-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 20 and 21 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 24 May 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

Claim 11, is withdrawn from consideration because it includes, via dependency the limitations of claim 9 which are not parcel of the elected species of figure 6.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,007,669 (hereafter Crumly) in view of US 6,434,819 (hereafter Rokugawa).

Crumly discloses, referring to figure 1, a circuit board, consisting of at least two individual circuit board layers (6, 8) made of plastics (see col. 2, lines 5-15) and

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produced by a formation technique, which each have first and second functional sides and at least one microstructured positioning formation (14, 20), said at least one formation being comprised of at least one projection (14) and at least one recess (20) positioned in interconnecting engagement, said at least one projection being formed on at least one of the first and second functional sides of one of said at least two individual circuit board layers, said at least one recess being formed on at least one of the first and second sides of another of said at least two individual circuit board layers and positioned in interconnecting engagement with said at least one projection, said positioning formation being formed during formation of said circuit board layers, and a metalization (21) on one of the functional sides. Crumly does not specifically disclose locating the metalization in a trench [claim 1]. However, it is well known in the art to embed conductors within a trench in multilayered PCBs to reduce the overall thickness of the device, as evidenced by Rokugawa (see conductor 15a in figure 2(e)). Therefore, it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to embed the metalization of the invention of Crumly, as known in the art and demonstrated by Rokugawa. The motivation for doing so would have been to reduce the overall size of the device and thus making it adaptable to applications with tighter space constraints.

Moreover, the modified invention of Crumly discloses that the positioning formation is a protrusion [claim 2], wherein each individual layer is provided with a plurality of protrusions (14) on one side and a plurality of depressions (20) on the other, the protrusions of the one individual layer engaging into the depressions of the other

individual layer, so that the two individual layers are precisely positioned in relation to each other [claim 6], wherein the two individual layers are connected with each other by an electrically conductive material (see col. 2, lines 1-10) [claim 20], wherein a contact opening (20) is provided in at least one of the individual layers, the contact opening extending for the first side through the layer to the second side thereof, and that the opening is filled with an electrically conductive material (see figure 2) [claim 21].

Additionally, although the modified invention of Crumly does not specifically state that the feature is in the shape of a pyramid, Crumly does indeed state that the shape may vary (see col. 2, lines 50-60). It would have been an obvious matter to one of ordinary skill in the art to form the feature in a pyramid shape [claim 3]. Moreover, it has been held that more than a mere change of form is necessary for patentability. *Span-Deck, Inc v. Fab-Con, Inc.* (CA 8, 1982) 215 USPQ 835. Furthermore, it is clear that the modified invention of Crumly discloses the position feature to be a depression (20) [claim 4], complementary to any shaped protrusion (see col. 2, lines 15-25), including a pyramid-shaped protrusion [claim 5].

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-6, 20 and 21 have been considered but are moot in view of the new ground(s) of rejection.

### ***Allowable Subject Matter***

Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5,666,272	Moore et al.,
US 5,825,630	Taylor et al.,
US 6,392,165	Liao,
US 6,490,168	Rochowicz et al..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 703-306-5737. The examiner can normally be reached on Mon.-Th., 9AM - 6:30 PM and alt. Fri. 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0725 for regular communications and 703-308-0725 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JCSN  
February 8, 2003

*David H. Zarnke*  
David H. Zarnke  
A 2827